

Application No.: 10/757,127

Case No.: 51952US018

REMARKS

Claims 1-22 remain pending in the application. No amendments thereto are submitted herewith. Reconsideration of the application is respectfully requested in view of the following remarks.

The Office Action rejected the claims on two grounds. The first ground was lack of written description under 35 USC § 112, first paragraph. The second ground was anticipation under 35 USC § 102(e) by U.S. Patent 6,015,214 (Heenan et al.).

Written Description

In the Submission of Jan. 21, 2005, in response to an earlier Written Description rejection, the undersigned provided a detailed explanation of how the application teaches “rectangular cube corner elements” at least in connection with the cube corner elements of FIG. 9, where each cube corner element has a “left”, “right”, “top”, and “bottom” boundary or border. In particular, the Submission explained how the specification teaches embodiments wherein:

- (a) the left and right borders are parallel to each other;
- (b) the top and bottom borders are parallel to each other; and
- (c) the top and bottom borders are perpendicular to the left and right borders.

The Submission further stated “the top/bottom borders can have a dimension that is different than that of the left/right borders”, and showed where the specification provides support for this additional feature in the recitation of “different ranges” for groove vertices compared to lamina thickness.

The most recent Office Action found the argument unconvincing because “the teaching of the different ranges given for the spacing of groove vertices 33 does not suggest the cube corner elements has [sic] a rectangular shape.” We interpret this to mean that the Examiner is unconvinced that the specification teaches that the top/bottom borders have a different dimension than the left/right borders.

BEST AVAILABLE COPY

Application No.: 10/757,127

Case No.: 51952US018

In hindsight, it was unnecessary for the Submission to discuss the *additional feature* (i.e., that the top/bottom borders have a different dimension than the left/right borders). Whether or not this *additional feature* exists is irrelevant to the essential requirements of a rectangle, which requirements are set forth in items (a)-(c) above, the support for which has not been challenged in the Office Action. The requirements of items (a)-(c), without more, are consistent with the following ordinary definitions for rectangle:

rectangle (n). A parallelogram with a right angle.

The American Heritage Dictionary, Second College Edition, Houghton Mifflin Co. (Boston, 1991), p. 1035.

rectangle or oblong, n. A parallelogram with four right angles. An equilateral rectangle is a SQUARE.

The HarperCollins Dictionary of Mathematics, E. J. Borowski and J. M. Borwein, (HarperResource, 1991), p. 494.

Hence, even assuming *arguendo* that the teaching of the “different ranges” in the specification fails to teach that the top/bottom borders have a different dimension than the left/right borders, the rejection of claims 1-21 under 35 USC § 112, first paragraph cannot be sustained because, as explained in the prior Submission, the specification plainly teaches items (a)-(c) at least in connection with the cube corner elements of FIG. 9, thus it plainly teaches “rectangular cube corner elements”. Withdrawal of the rejection under 35 USC § 112, first paragraph is respectfully requested.

Anticipation

The Office Action also rejected claims 1-22 as anticipated (under 35 USC § 102(e)) by ‘214 Heenan et al. These claims, however, were copied either identically or substantially from the ‘214 Heenan et al. reference. Upon the resolution of the 35 USC § 112 first paragraph rejection discussed above, Applicant intends to submit an appropriate showing pursuant to 37 CFR § 41.202 so that an interference can be declared.

Application No.: 10/757,127

Case No.: 51952US018

CONCLUSION

Applicant submits that the pending claims 1-22 conform to the written description requirement of 35 USC § 112, first paragraph, and that the rejection should be withdrawn.

If the Examiner should have any further questions or comments relating to the foregoing, which questions or comments could be readily resolved or discussed in an interview setting, he is respectfully requested to consider contacting the undersigned to arrange such an interview so that the prosecution of the present application can be timely advanced.

No fee is believed to be due by submission of this paper. If this belief is in error, please charge any required fee to Deposit Account No. 13-3723.

Respectfully submitted,

24 Oct 2005
Date

By: Stephen C. Jensen
Stephen C. Jensen, Reg. No.: 35,207
Telephone No.: (651) 736-3369

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833

Attachment: copies of dictionary definitions of "rectangle"

Second College Edition

African Heritage Dictionary

BEST AVAILABLE COPY

CONTENTS

INTRODUCTION	651	736	4517	10/24/05	17:41	07/11	NO:490
STAFF							
USAGE PANEL							
CONSULTANTS							
SPECIAL ARTICLES							
Language, Culture, and the American Heritage							
Lee Pederson							
Usage and Acceptability in Language							
Dwight Bolinger							
William F. Buckley, Jr.							
English and Good English							
Geoffrey Nunberg							
The Mathematics of Language							
Henry Kučera							
GUIDE TO THE DICTIONARY							
STYLE MANUAL							
PRONUNCIATION KEY							
DICTIONARY OF THE ENGLISH LANGUAGE							
BIOGRAPHICAL ENTRIES							
GEOGRAPHIC ENTRIES							
ABBREVIATIONS							
FOUR-YEAR COLLEGES AND UNIVERSITIES							
TWO-YEAR COLLEGES AND UNIVERSITIES							
PICTURE CREDITS							

Words that are believed to be registered trademarks have been checked with authoritative sources. No investigation has been made of common-law trademark rights in any word, because such investigation is impracticable. Words that are known to have current registrations are shown with an initial capital and are also identified as trademarks. The inclusion of any word in this Dictionary is not, however, an expression of the Publisher's opinion as to whether or not it is subject to proprietary rights. Indeed, no definition in this Dictionary is to be regarded as affecting the validity of any trademark.

Copyright © 1982, 1985, 1991 by Houghton Mifflin Company. All rights reserved.

No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or by any information storage or retrieval system without the prior written permission of Houghton Mifflin Company unless such copying is expressly permitted by federal copyright law. Address inquiries to Permissions, Houghton Mifflin Company, 2 Park Street, Boston, MA 02108.

Library of Congress Cataloging in Publication Data

Main entry under title:

American Heritage dictionary.

Rev. ed. of: American Heritage dictionary of the English language. New college ed. c1976.

1. English language—Dictionaries. I. Morris, William, 1913—

PE1625.A54 1982 423 82-9346

ISBN 0-395-32943-4

ISBN 0-395-32944-2 (thumb index)

ISBN 0-395-33959-6 (deluxe edition)

Manufactured in the United States of America

•

GE

8/11 * RCVD AT 10/24/2005 6:44:26 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/29 * DNIS:2738300 * CSID:651 736 4517 * DURATION (mm:ss):07-02

THE
HARPERCOLLINS
DICTIONARY
OF
MATHEMATICS

E.J. Borowski and J.M. Borwein

with the assistance of
J.F. Bowers, A. Robertson, and
M. McQuillan

Series Editor, Eugene Ehrlich

 HarperResource
An Imprint of HarperCollins Publishers

In memory of our grandparents.

ח"נ צ"ב ה"

HARPERCOLLINS DICTIONARY OF MATHEMATICS Copyright © 1991 by E.J. Borovick
and J.M. Borwein. Additional text © HarperCollinsPublishers, Inc. All rights
reserved. Printed in the United States of America. No part of this book may be used
or reproduced in any manner whatsoever without written permission except in the
case of brief quotations embodied in critical articles and reviews. For information
address HarperCollinsPublishers, 10 East 53rd Street, New York, N.Y. 10022.

ISBN 0-06-271525-9
ISBN 0-06-461019-5 (pbk.)
Library of Congress 90-55966

02 03 04 05 RRD 20 19 18 17 16 15

RECIPROCAL

$$1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \frac{1}{5} - \frac{1}{6} + \dots = \ln 2,$$

and

$$1 + \frac{1}{3} - \frac{1}{2} + \frac{1}{5} - \frac{1}{4} + \frac{1}{7} - \frac{1}{6} + \dots = \ln\left(2\sqrt{2}\right),$$

while

$$1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \frac{1}{5} - \frac{1}{6} + \frac{1}{7} - \frac{1}{8} + \frac{1}{9} - \frac{1}{10} + \dots$$

is divergent. *Stirling's theorem* shows that the set of limits of the convergent rearrangements of a series in Euclidean space always forms an AFFINE MANIFOLD, which is a singleton if and only if the series converges absolutely. *reciprocal, adj.* 1a. of relating to a multiplicative inverse; for example, x^2 and x^{-2} are reciprocal functions.

b. forming a multiplicative inverse. For example, the *reciprocal function*, $y = 1/x$ takes as its value for any argument the element whose product with the given argument is unity.

2. of or relating to the result of dividing 1 by a given number or quantity; for example, the reciprocal fraction of a/b is b/a .

3. (as *substantive*) a. an expression of the form $1/x$.

b. any function, expression, number or quantity that is reciprocal to another; for example, the reciprocal of a/b is b/a .

reciprocal polar curve, n. a pair of curves such that the POLAR of each point of one is tangential to the other. See POLAR AND POLAR.

reciprocal polar figure, n. the figure related to a given configuration of points and lines in the plane in such a way that each point of either figure is the POLE of a line in the other (or equivalently, each line of either figure is the POLAR of a point in the other) with respect to some given conic, for example a pair of RECIPROCAL POLAR CURVES.

reciprocal variation, n. another term for INVERSE PROPORTION.

reciprocation, n. (Geometry) the transformation of a configuration of points and lines into its RECIPROCAL POLAR FIGURE.

reciprocity law, n. the law of QUADRATIC RECIPROCITY.

rectangle or oblong, n. a parallelogram with four right angles. An equilateral rectangle is a SQUARE.

rectangular, adj. 1. shaped like a rectangle; having right angles. 2. mutually perpendicular.

rectangular coordinates, see CARTESIAN COORDINATES.

rectangular hyperbola, n. a HYPERBOLA of which the asymptotes are perpendicular, if $xy = c^2$, then the asymptotes are the coordinate axes, as in Fig. 311 opposite.

rectangular number, n. any number that is not PRIME, and so is expressible as $a \times b$, for a and b greater than 1; hence, equal to the number of unit-spaced points in a RECTANGULAR array, since the total number of points in such an array equals the product of the numbers of points in the sides. If these factors are equal, the number is a *square number*. See also FIGURATE NUMBER.

rectifiable, adj. (of a curve) possessing a well-defined ARC LENGTH; that is, if a_1, \dots, a_n are a set of points in order along the curve, the sum of the lengths of the chords from each a_i to a_{i+1} tends to a limit as n tends to infinity.

RECURRING DECIMAL

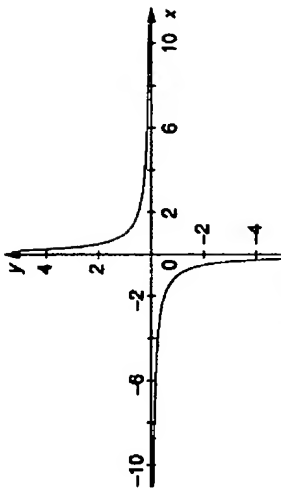


Fig. 311. Rectangular hyperbola.

rectify, *vb.* to determine the LENGTH of a curve. *rectilinear, adj.* consisting of, bounded by, or formed of straight lines. *recur, vb.* (of a digit or sequence of digits) to be repeated an infinite number of times at the end of the decimal expression of a fraction. For example, 3 recurs in the expansion of $241/500$ as 0.83333...; this is read as 'point eight three-recurring' or 'point eight three-repeating', and is written 0.83. See RECURRING DECIMAL. Compare TERMINATE. *recurrence relation or difference equation, n.* an equation of the form

$$x_{n+p} = f(n, x_n, \dots, x_{n+p-1})$$

that gives a RECURSIVE DEFINITION for the entire sequence, given p initial values; p is the *order* of the recurrence relation. Often there is no explicit dependence of f on n . For example, the n^{th} FIBONACCI NUMBER satisfies the recurrence relation

$$a_0 = 0, \quad a_1 = 1, \quad a_n = a_{n-1} + a_{n-2}$$

recurring decimal, repeating decimal or circulating decimal, n. a RATIONAL NUMBER whose representation as a DECIMAL (or RADICAL) FRACTION contains a pattern of digits that repeats indefinitely after the decimal point. If the sequence of digits $a_1 a_2 \dots a_n$ repeats, then the rational number represented by the recurring decimal is usually written

$$0.\overline{b_1 b_2 \dots b_m a_1 a_2 \dots a_n}$$

(where $b_1 \dots b_m$ are digits that do not recur);

$$0.\overline{a_1 a_2 \dots a_n} = \frac{a_1 a_2 \dots a_n}{10^n - 1}$$

so that, for example,

$$0.\overline{142857} = \frac{142857}{999999} = \frac{1}{7};$$

and

$$0.\overline{13} = 10^{-1} \left(1 + \frac{3}{9}\right) = \frac{4}{30}.$$

Compare TERMINATE.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☒ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.